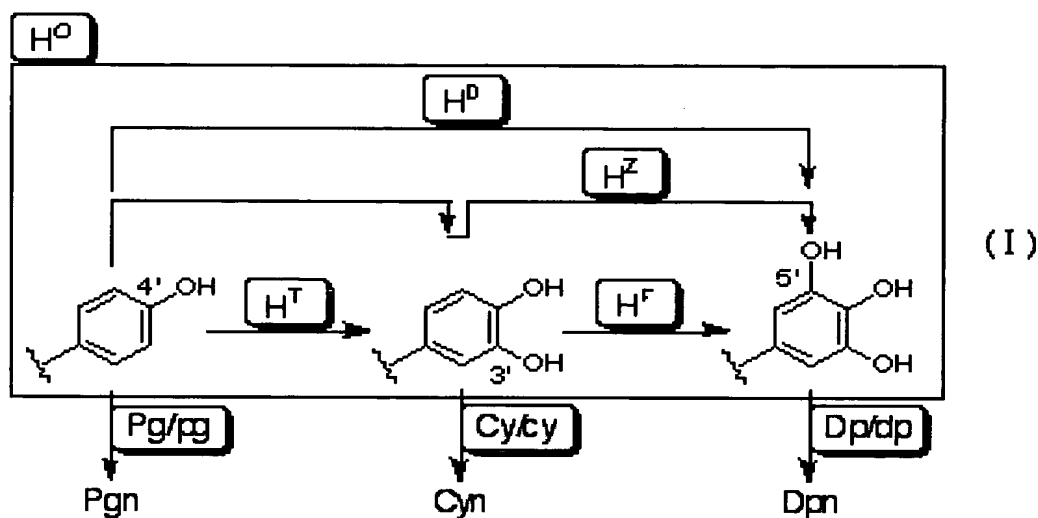


## CLAIMS

1. A method for crossing flowering plants based on their pigment genotypes, comprising creating new flower color utilizing new genotype  $H^X H^X \cdot Pg/pg \cdot Cy/cy \cdot Dp/dp$ , which is  
5 heredity of pelargonidin (Pgn), cyanidin (Cyn), and delphinidin (Dpn), which are main flower pigments concerning the flower color expression.

2. A method for crossing flowering plants based on their pigment genotypes which creates new flower color  
10 utilizing genotype  $D/d \cdot E/e \cdot H^X H^X \cdot Pg/pg \cdot Cy/cy \cdot Dp/dp$ , which is heredity of pelargonidin (Pgn), cyanidin (Cyn), and delphinidin (Dpn), which are main flower pigments concerning the flower color expression and which is heredity of double flower type, or marginal variegation type.

15 3. The method for crossing flowering plants based on their pigment genotypes according to claim 1, wherein the flower pigment genotype precipitates in and inherits flavonoid biosynthesis and has a route formula (I):



(wherein  $H^T$ ,  $H^F$ ,  $H^D$ ,  $H^Z$ , and  $H^O$  are multiple alleles participating in hydroxylation of B-ring of flavonoid biosynthesis precursor participating in biosynthesis of pelargonidin (Pgn), cyanidin (Cyn), and delphinidin (Dpn). These five multiple alleles,  $H^T$ ,  $H^F$ ,  $H^D$ ,  $H^Z$ , and  $H^O$ , control hydroxylation at 3'-position, hydroxylation at 5'-position, hydroxylation of 3',5'-positions, hydroxylation at 3'- and 5'-positions, and hydroxylation of 5'-, and 3',5'-position, respectively; the expression of these five multiple alleles may be other expression method, for example, T, F, D, Z, O; the expression Pg/pg, Cy/cy and Dp/dp means the existence of gene loci corresponding to the expression of dihydroflavonol reductase (DFR) or anthocyanidin synthase (AS) participating in biosynthesis of Pgn, Cyn, and Dpn; D/d is a corolla character of double flower type, and E/e is a corolla character of marginal variegation).

4. The method for crossing flowering plants based on

their pigment genotypes according to claim 1, wherein flower color of the flowering plants is inherited in the course of flavonoid biosynthesis.

5        5.        The method for crossing flowering plants based on their pigment genotypes according to claim 2, wherein flower color of the flowering plants is inherited in the course of flavonoid biosynthesis.

10       6.        The method for crossing flowering plants based on their pigment genotypes according to claim 3, wherein flower color of the flowering plants is inherited in the course of flavonoid biosynthesis.

7.        The method for crossing flowering plants based on their pigment genotypes according to any one of claims 1 to 7, wherein said flower color is maternally inherited.

15       8.        A quick reference cap guide which determine the combination of crossing plants based on flower pigment genotype for creating a flower color, which displays the combination of multiple allele according to any one of Claims 1 to 7 taking gametes of pollen parents as a row and gametes of seed parent as a line.

20       9.        A quick reference cap guide which determine the flower color from the combination of crossing plants based on flower pigment genotype, which displays the combination of multiple allele according to any one of Claims 1 to 7 taking gametes of pollen parents as a row and gametes of seed parent as a line to understand the flower color.

10. Use of the quick reference cap guide of multiple allele according to claim 8 for crossing based on a flower pigment genotype for creating new flower color.

11. Use of the quick reference cap guide of multiple  
5 allele according to claim 9 for crossing based on a flower pigment genotype for creating new flower color.